REGIONAL TRANSIT FRAMEWORK STUDY UPDATE
Maricopa Association of Governments

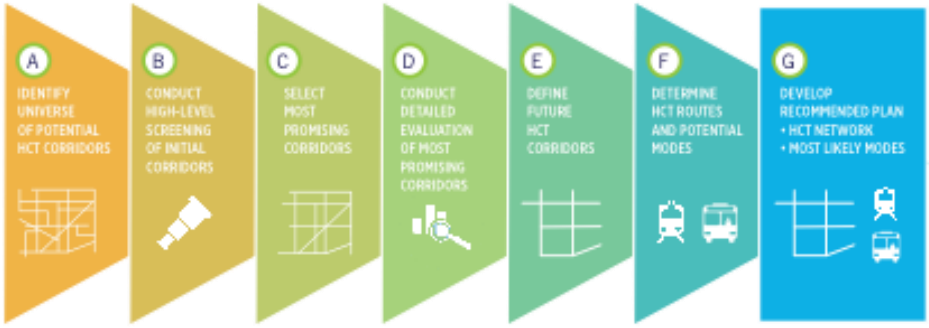
EVALUATION FRAMEWORK

DRAFT 7.11.17

INTRODUCTION

This document describes the evaluation framework process that is proposed to select recommended corridors for future high capacity transit (HCT) service. In summary, it consists of seven steps (see also Figure 1):

Figure 1: Evaluation Framework



A. **Identify Universe of Potential HCT Corridors** based on underlying transit demand, previous plans and studies, and input from local jurisdictions and Valley Metro.

B. **Conduct High-Level Screening of Initial Corridors** to determine how well each corridor would achieve the project goals and objectives.

C. **Select Most Promising Corridors** based on the findings of Step B.

D. **Conduct Detailed Evaluation of Short-Listed Corridors** to expand upon the assessment conducted in Step B and produce more definitive information necessary to determine where HCT services should be provided.

E. **Identify the Corridors** that should be included in the updated Regional Transit Framework Study based on the results of Step D.

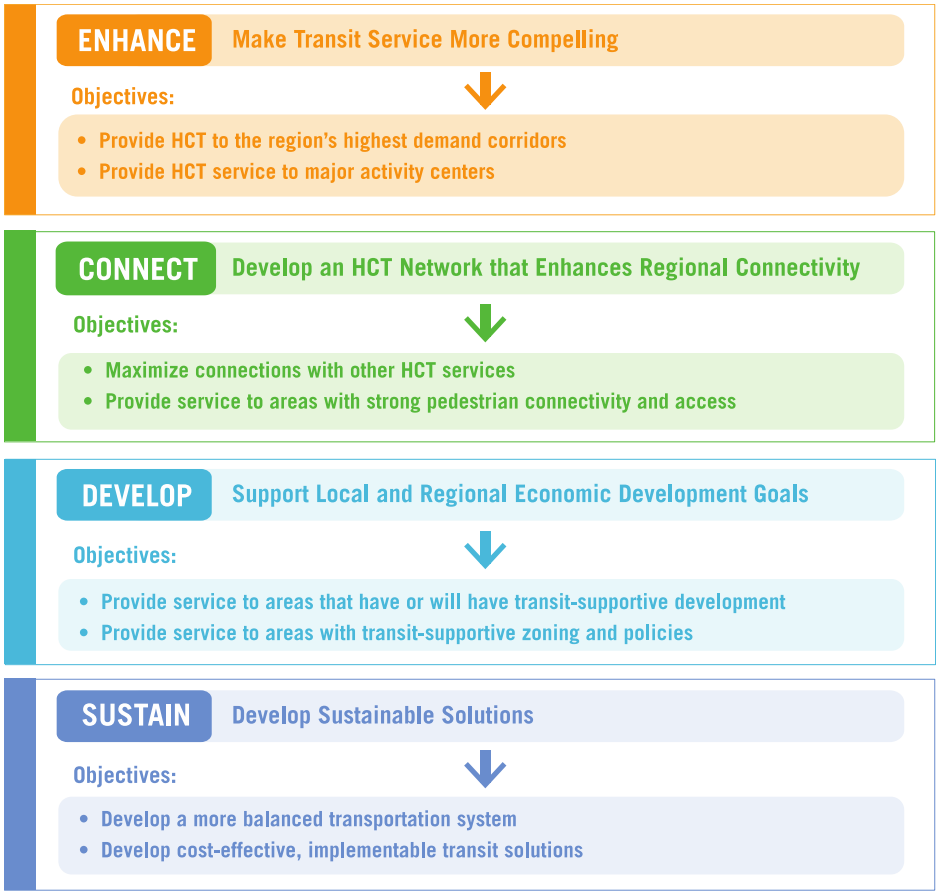
F. **Determine HCT Routes and Potential Modes** that would serve the HCT corridors.

G. **Develop Recommended Plan** that describes the metro area's future HCT network.

GOALS AND OBJECTIVES

The evaluation framework process is based on the project's goals and objectives (with draft goals and objectives presented in Figure 2).

Figure 2: Goals, and Objectives



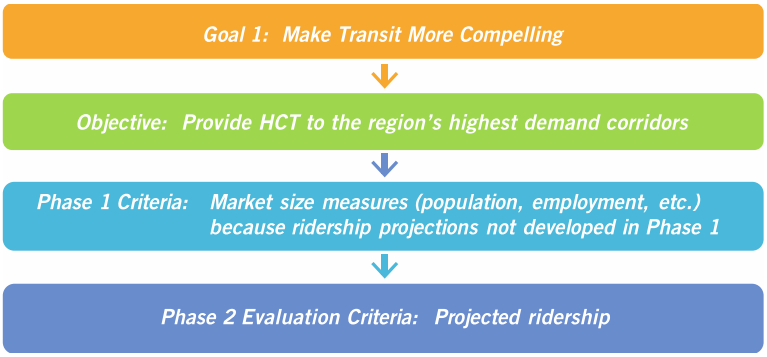
SCREENING AND EVALUATION CRITERIA

As described above, the evaluation of potential corridors will be conducted in two phases:

1. A high-level screening of the universe of potential corridors.
2. A detailed analysis of the smaller set of corridors that emerge from the Phase 1 screening.

The criteria that will be used for these two steps are intended to measure how well HCT in individual corridors would achieve the project's goals and objectives. The initial screening criteria will consist of high-level measures designed to evaluate a large number of corridors. The final evaluation criteria will build upon the initial criteria and provide the detailed information required to develop the recommended plan (see Figure 3 and Table 1).

Figure 3: Relationship between Goals, Objectives, and Criteria



DESCRIPTION OF PROCESS

A. Identify Universe of Potential Corridors

The initial step will be to identify a broad range of potential HCT corridors, based on the following:

- Recommendations from other recent studies and plans.

- Results of the market analysis, which will identify areas that can support frequent levels of transit service through 2040.
- Input from representatives of local jurisdictions and Valley Metro.

Step A will identify all corridors viewed as having potential demand for HCT.

B. Conduct High-Level Screening of Initial Corridors

A high-level screening will be conducted to identify the most promising HCT corridors in the region. The screening criteria that will be used consists of a combination of quantitative and qualitative measures as presented in Table 1.

Each measure will be examined at varying levels of detail, as appropriate, and a summary of the results will be prepared for each measure. Based on the results for each measure, each alignment will be assigned a rating of "Best", "Good", "Fair," or "Poor." To facilitate decision making, these ranking will indicate how each alignment would perform relative to each other, rather than in absolute terms.

Table 1: High-Level Screening and Evaluation Criteria

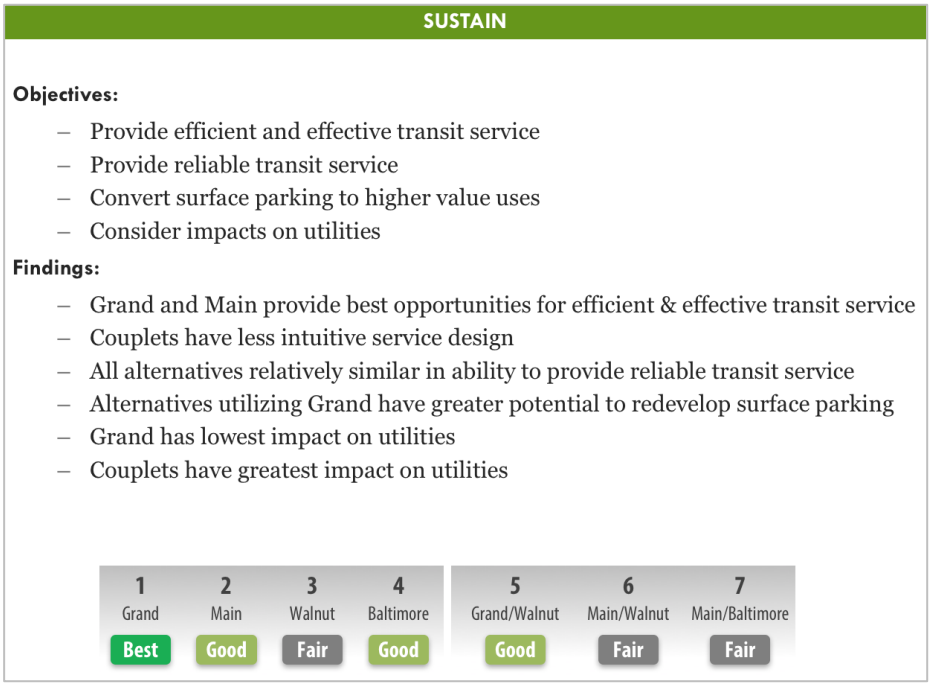
Goal/Objective	Initial Screening Measure	Final Evaluation Measure
ENHANCE **Make Transit Service More Compelling**		
Provide HCT in the region's highest demand residential and employment locations	• 2040 composite transit demand within ½ mile (using methodology described in market analysis)	• Total projected ridership • Ridership to and from low-income neighborhoods • New transit trips
Provide HCT service to major activity centers	• Number of students at high schools within ½ mile • Number of students at universities and colleges within ½ mile • Number of hospital beds at major medical facilities within ½ mile	• *Not used, as impacts reflected in projected ridership*
CONNECT **Develop an HCT Network that Enhances Regional Connectivity**		
Maximize connections with other transit services	• Number of connections with currently planned HCT services • Number of connections with potential new HCT services (top 1/3 of universe of potential lines in terms of underlying transit demand) • Number of connections to transit centers and other transit services (current and planned)	• Number of connections with currently planned HCT services • Number of connections with potential new HCT services (top 1/2 of universe of potential lines in terms of projected ridership) • Number of connections to transit centers and other transit services (current and planned)
Provide service to areas with strong pedestrian connectivity and access	• *Not used in initial screening*	• Intersection density per square mile

Table 1 (Continued): High-Level Screening and Evaluation Criteria

Goal/Objective	Initial Screening Measure	Final Evaluation Measure
DEVELOP **Support Local and Regional Economic Development Goals**		
Provide service to areas that have or will have HCT-supportive development	• Mix of residents and jobs • Qualitative assessment based on review of local plans	• Mix of residents and jobs • Qualitative assessment based on review of local plans
Provide service to areas with transit-supportive zoning and policies	• Degree to which adopted local plans require or enable transit supportive development	• Degree to which adopted local plans require or enable transit supportive development
SUSTAIN **Develop Sustainable Solutions**		
Develop a more balanced transportation system	• *Not used in initial screening*	• Increase in transit mode split in corridor • Reduction in SOV mode share in corridor • Increase in person-throughput in corridor
Develop cost-effective, implementable transit solutions	• *Not used in initial screening*	• Operating cost per passenger • Annualized capital cost per passenger • Passengers per revenue mile

Finally, the rankings for the individual screening criteria will be used to develop ratings of how well each corridor would achieve the overall project goals. These ratings will also be presented in terms of "Best," "Good," "Fair," and "Poor," and will be relative ratings. An example of this was done for a streetcar project in Kansas City is as shown in Figure 4.

Figure 4: Kansas City Tier 1 Screening Results Presentation Example



C. Select Most Promising Corridors

Selection of the corridors to be carried forward for more detailed evaluation will be based on the results of the Phase 1 screening and input from the Technical Workgroup. There will not be a preset limit on the number of corridors to be brought forward; however, the corridors to be brought forward will be limited to those that provide demonstrably strong potential.

D. Conduct Detailed Evaluation of Most Promising Corridors

The detailed evaluation will be conducted using the criteria shown previously in Table 1. These criteria are designed to expand upon the measures used in the Initial High-Level Screening (Step B), including the development of more definitive information.

As with the high-level screening, the detailed evaluation will be based on the project goals and objectives and will consist of a combination of qualitative and quantitative measures. In most cases, additional criteria will be used (for example, projected ridership) that will provide much more detail than the high-level screening information. In some cases, the detailed evaluation measures will be the same as the high-level screening measures.

Results will be presented in a similar manner as for the Initial High-Level Screening (Step B).

E. Select Future HCT Corridors

Using the results of Step D and input from the Technical Workgroup, the study team will determine which corridors should be served by some form of HCT. The primary selection factor will be projected ridership, with sufficient demand to support productive service that operates every 15 minutes or better. Other factors will be used to set priorities among corridors and to determine the types of HCT that would be most appropriate. Finally, corridors will be selected in a manner that avoids service duplication.

F. Determine Specific Services and Appropriate Modes

Step F will determine the specific routes that should be operated in those corridors and potential HCT modes. The potential modes will be LRT, full BRT, and partial BRT (BRT without exclusive bus lanes).

Most Valley Metro service currently operates east-west or north-south as part of a grid network, and most future HCT services will operate in the same manner. However, some new services could also combine east-west and north-south alignments to provide point-to-point service.

Potential modes will be determined using the following considerations:

1. The amount of service that would need to be provided to serve projected demand and the vehicle types that would be most appropriate to provide service every 15 minutes or better. For example, a corridor with projected demand of 200 passengers per hour could be served with full 40′ buses or mostly empty light rail trains and so the appropriate modes would be BRT or partial BRT. Ridership thresholds will be developed for each of the three potential modes.
2. Social equity considerations.
3. The physical character of corridor, largely in terms of whether or not BRT or LRT, both of which would include dedicated transit lanes, could be accommodated.
4. Consistency with local plans and priorities.

G. Develop Recommended Plan

Finally, the results of the determination of appropriate HCT modes will result in a regional HCT network that specifies the most likely HCT modes.